

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference CMF44770PCT	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/IT2005/000083	International filing date (day/month/year) 17.02.2005	Priority date (day/month/year) 18.02.2004	
International Patent Classification (IPC) or national classification and IPC INV. A43B7/08 A43B7/10 A43B17/08 A43B17/14			
Applicant GENERAL BUILDING S.A.S. DI DE GIACOMI GIANCARLO			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 9 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 27.06.2005		Date of completion of this report 01.06.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Ciani, S Telephone No. +31 70 340-4655	



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IT2005/000083

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

2, 3	as originally filed
1, 1bis, 4	filed with telefax on 27.06.2005

Claims, Numbers

1-10	filed with telefax on 27.06.2005
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Drawings, Sheets

1/4-4/4	filed with telefax on 27.06.2005
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- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	2-5,7-9
	No: Claims	1,6,10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

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Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: DE 90 16 428 U1 (TENG, CHAO-PAO, TAICHUNG, TW) 7 March 1991 (1991-03-07)

D2: US 2002/170203 A1 (SANNER WALTER) 21 November 2002 (2002-11-21)

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document): a shoe comprising an outersole to which an upper and an heel rear portion are joined, the shoe further comprising at least an oversole apt to be pressed by a foot, said oversole being a porous foamed cushion with interconnected chambers or bubbles (see page 4).

The subject-matter of claim 1 therefore differs from this known shoe in that: said oversole is provided under the foot sole with hollows connected by channels and with at least one hole in said heel rear portion.

The problem to be solved by the present invention may therefore be regarded as improving the ventilation within a footwear.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons: the above cited feature is described in document D2 (see figures 1-3) as providing the same advantages as in the present application. The skilled person would therefore regard it as a normal /design/ option to include this feature in the shoe described in document D1 in order to solve the problem posed.

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2. Dependent claims 6,10 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, see documents D1 and D2 in combination and the corresponding passages cited in the search report.
3. The combination of the features of dependent claims 2-5,7-9 is neither known from, nor rendered obvious by, the available prior art.

SHOE WITH UPPER AND HEEL DEVELOPED VENTILATION

TECHNICAL FIELD.

- 1 The present invention relates to shoe construction to alleviate perspiration of user's feet and to get a more comfortable walking mainly it relates to a new improved shoe construction where ventilation for user's foot aereating is obtained both by using the suitable special shaped innersole with an intake in the heel rear portion and by using in combination some air channels through the upper sidewalls.

DESCRIPTION OF THE BACKGROUND ART.

- In the past there have been several attempts to develop many shoe constructions to reduce sweat of user's feet and to provide additional confort to the users, but by our point of view, the results were not satisfactory, both considering functionality, their design and manufacturing difficulties. For example some patents set forth an outer sole with many holes inside and a fitted waterproof innersole over said outersole, with microholes to leave air passage through but avoiding water drops permeation. In this case it is not considered that by walking, debris, mud, dust and so on, can clog these microholes, so that ventilation stops after a short period of use.

- Other patents set forth outsoles construction with one or more one-way valves inside which air can pass through, stopping rain water permeation: also in this case these valves can be clogged by debris, mud, dust and so on, because they are in contact or too much close to the dirty surface of the road, so that after a short time of walking they don't work anymore and the effectiveness of the ventilation diminishes soon.

- Other patents set forth ventilated shoes with air inlet in the heel portion of the shoe but with a reduced air flow, not improved and increased by the pumped air of the protruding inner lining in the heel portion. These patents furthermore disclose shoe constructions with circulating air inside that can make wearing of the shoe more comfortable, but failing to provide the shoe with inner air changeable flow depending upon time weather, cold in wintertime and hot in summer.

- Furthermore some patents set forth shoe construction with some holes in the upper horizontal portion of the toe, but in this case, when it is raining, some rain drops can infiltrate into the shoe, wetting the user's feet.

- Moreover these patents set forth shoe construction with a reduced air inner ventilation not only because they fail to provide the shoe with the rear heel air pump as told above, but also they don't use upper sidewalls channels in combination to add vented air to that one drawn into, through rear heel intakes.

It is considered necessary to disclose the shoe manufacturing steps to make easier understanding the industrial manufacturing difficulties of the patents shown above, where ventilation is provided through the air intake and channels in the heel rear portion.

- Usual shoe manufacturing steps are following:

- a) model design with cardboard elements mainly to cut upper different portions
- b) hollow punches manufacturing including that one for the counterfort to make harder the shoe heel.
- c) upper different pieces cutting.
- d) sewing and gluing of different upper pieces.
- e) turning of the already sewed portions of the upper around the wooden shoe last, and mainly the heel outer upper, the counterfort and the inner lining, already glued among them, must be turned under the wooden last, to be glued or sewed to the outer sole.

- lbis -

DE 100 41 113 discloses a shoe comprising a complex flat sole, adherent or integral with an outersole, provided with channels, holes and chambers. A duct is specifically provided to communicate said sole with an upper rear portion of the shoe. DE 90 16 428U discloses a flat inner sole provided with longitudinal and transversal channels communicating with some peripheral apertures. US2002/170203 discloses a shoe comprising an outersole provided with some recesses and channels, covered by an insert closing the recesses from the above and making them communicate with some channels in the sidewalls of the shoe. GB 2189679 discloses a ventilating mechanism to be removably inserted in the shoe or formed integrally with it; the mechanism comprises a complex insole element formed of a resilient material and having a pump integrally formed therewith, comprising a pump chamber, a plurality of valved inlet ports and valved outlet ports.

Furthermore some patents set forth shoe construction with some holes in the upper horizontal portion of the toe, but in this case, when it is raining some rain drops can infiltrate into the shoe, wetting the user's feet.

Moreover these patents set forth shoe construction with a reduced air inner ventilation not only because they fail to provide the shoe with the rear heel air pump, as told above, but also they don't use upper sidewalls channels in combination, to add vented air to that one drawn into, through rear heel intakes.

It is considered necessary to disclose the shoe manufacturing steps to make easier understanding the industrial manufacturing difficulties of the patents shown above, where ventilation is provided through the air intake and channels in the heel rear portion.

Usual shoe manufacturing steps are following:

- a) model design with cardboard elements mainly to cut upper different portions
- b) hollow punches manufacturing including that one for the counterfort to make harder the shoe heel.
- c) upper different pieces cutting.
- d) sewing and gluing of different upper pieces.
- e) turning of the already sewed portions of the upper around the wooden shoe last, and mainly the heel outer upper, the counterfort and the inner lining, already glued among them, must be turned under the wooden last, to be glued or sewed to the outer sole.

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h) first inner lining 14, turned and glued to the counterfoot 13 - 1) an inner foamed protrusion 11 called "bellows" joined or separated from the foamed oversole 19, under the footsole, with interconnected open chambers, memory retentent, with an empty cavity 9 and working as air pump in addition to the hollows 6 and 8, under the footsole which is connected to with one or more channels 20. - 2) second inner lining 10 or safe-socks not glued to first lining 14 to enable the "bellows" introduction between said two linings. This lining may have a rough surface to avoid vertical inside slipping of the foot. Said second inner safe-socks lining has a particular shape, shown in fig. 2, with an opening 21 in the middle, where the "bellows" must be introduced during shoe manufacturing, that is the seat of channels 20, and with two sides blades 18, to be turned under the wooden last, afterwards glued to the outer sole 2.

In the shoe rear portion, there are fitted one or more holes 17, which air can enter through, when hollows 6 and 8 under footsole are depressed, and where ventilation air is expelled when hollows 6 and 8 are compressed. These intakes 17 can be completely or partially clogged, by closing one or more holes with horizontal or vertical straps 15 provided with plugs 16, so that to change the inner air ventilation flow.

For an increase and an homogenous improvement of the inner air ventilation, also two upper sidewalls are used as shown hereinafter. To increase ventilation, avoiding mainly the holes on the horizontal toe upper, where rain drops can infiltrate, as disclosed above, on the contrary upper higher side portions 3 and 29 in fig. 3 are sewed or glued in the way that with some protrusions X and X', surmount the lower portions 4 and 28 respectively, shielding some holes 80X and X' in the lower portions, with some particular sewing lines 2 and 2', which close the protrusions X and X' on three sides, leaving open air passages 2 and 2', where ventilation air can be drawn into or expelled. This waterproofing system of the air intakes, can be applied also on non-horizontal lines, but oblique, where the protrusion, sewed on three sides, must have the side up sewed and the low side free, not sewed. With this embodiment, rain water, vertically falling, can't infiltrate the sidewall shielded intakes 2 and 2'. So that a satisfactory waterproofing of the upper is got.

In another embodiment, shown in fig. 4, higher upper portion 500, with straight outlines without protrusions, surmounts the lower portions 2 and 4, forming wavy some little elevations 150, shielding the air intakes 120 and 120', to avoid rain drops infiltration. The same happens for the higher upper portion 500 that surmounts the lower portion 4 forming little elevations 160 shielding air intakes 2'. These wavy elevations are got by suitable sewing lines 130 with recesses at intervals. In fig. 4 the heel intakes are clogged by vertical straps with hook and loop fasteners 110 and 110'.

In Fig. 5, that is a rear view of the shoe, two holes 17 are shown, as air intakes and outlets that can be clogged by the straps 15 with buttons 14. To reduce the inner air flow of 50%, it is possible to clog only one intake. In two sidewalls, right and left sides, air conduits 22 shielded by the protrusions 51 are shown.

The toe cross section of fig. 6 shows the outersole 2 glued to the reinforced innersole 18 and to the foamed oversole 19 with open interconnected chambers. An inner lining 12 with holes 5 is overlying said foamed oversole 19. On two sides the outer upper 4 and the inner lining 12 are turned and glued or sewed to the outersole 2; said outer upper 4 and inner lining 12 are provided with the holes 81 where ventilation air can pass when it is drawn into and expelled from the conduits 91.

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AMENDED CLAIMS

1) Shoe with developed ventilation, comprising an outersole (2) to which an upper (1) and an heel rear portion (12, 42) are joined, the shoe further comprising at least an oversole (19) apt to be pressed by a foot, characterized in that said oversole (19) is a porous foamed cushion with interconnected chambers or bubbles, said oversole (19) being provided under the foot sole with hollows (6, 8) connected by channels (7) and with at least one hole (17) in said heel rear portion (12).

2) Shoe as in claim 1), wherein a foamed protrusion bellow (11) is further provided at the rear portion of the shoe, said bellow defining an empty cavity (9) working as a pump and connected with said hollows (6, 8) by at least one channel (20).

3) Shoe as in claim 2), wherein said foamed protrusion bellow (9) is joined to said foamed oversole (19).

4) Shoe as in claim 2) or 3), wherein an inner or safe-socks lining (10) is provided inside the shoe on the outer side of said bellow (11).

5) Shoe as in claim 4), wherein said inner lining (10) has an opening (21) in the middle and two side blades (18).

6) Shoe as in any one of the previous claims, wherein a thin lining (4) fitted with many holes (5) is further provided on the oversole (19).

7) Shoe as in any one of the previous claims, wherein said at least one hole (17) in said heel rear portion (12) may be partially or totally clogged by closing means (15, 16; 100, 110; 130, 140).

8) Shoe as in any one of the previous claims, wherein the shoe includes, in the sidewalls, higher upper portions (3, 200) surmounting lower upper portions (41, 42) at least with some protrusions (50, 50', 51') apt to shield air intakes (80, 80', 81) or conduits (91, 91') fitted in said lower upper portions (41, 42).

9) Shoe as in any one of claims 1) to 7), wherein the shoe includes, in the sidewalls, higher upper portions (500, 600)

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surmounting lower upper portions (900) at least with some waved elevations (150, 160) apt to shield air intakes (120, 300).

10) Shoe as in any one of the previous claims; wherein said foamed protrusion bellow (11) and foamed cushion are made of a memory retent material.

AMENDED SHEET

Empf.zeit: 27/06/2005 18:14

rmpt_nr.: 720 P.012

27-06-2005

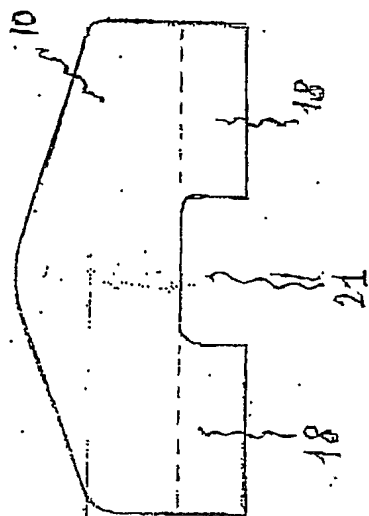


fig. 2

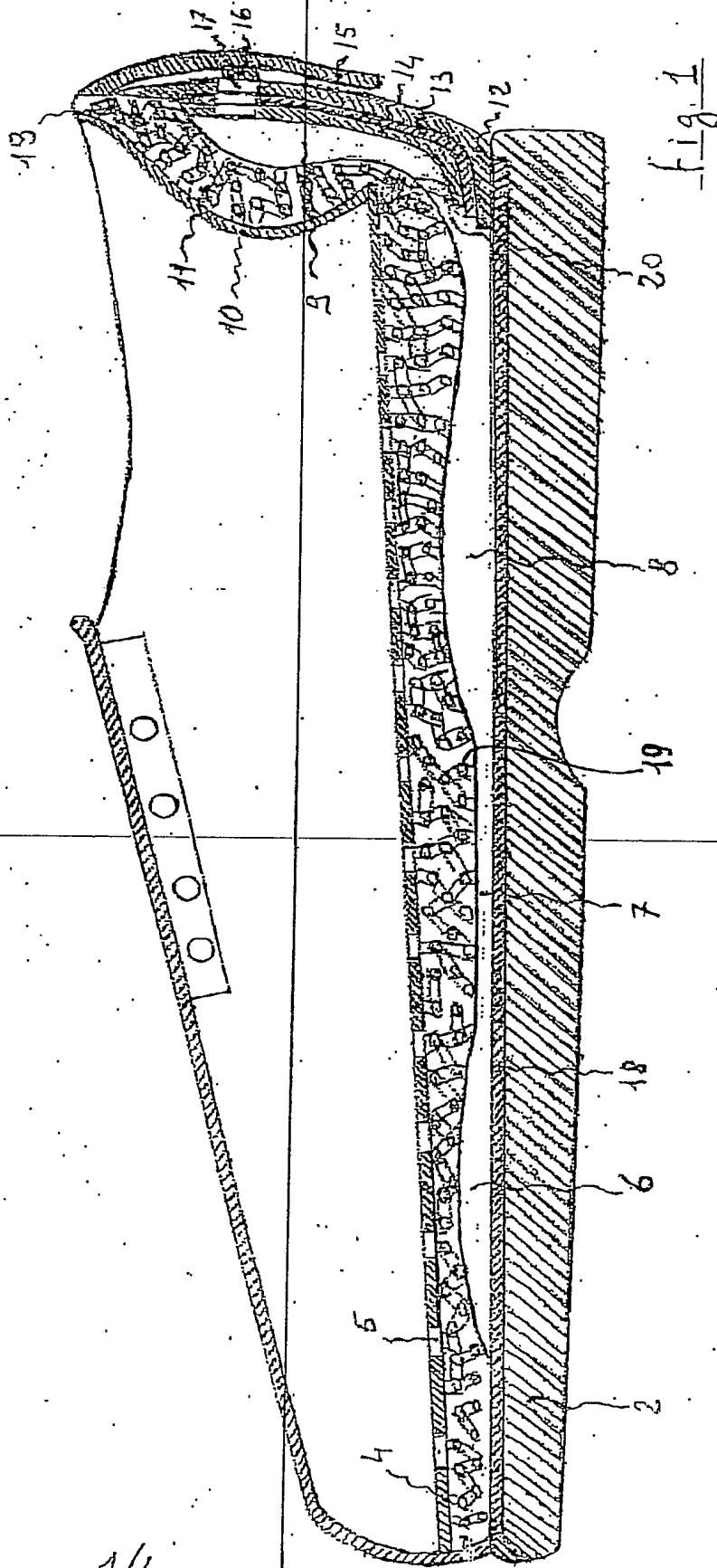


fig. 1

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AMENDED SHEET

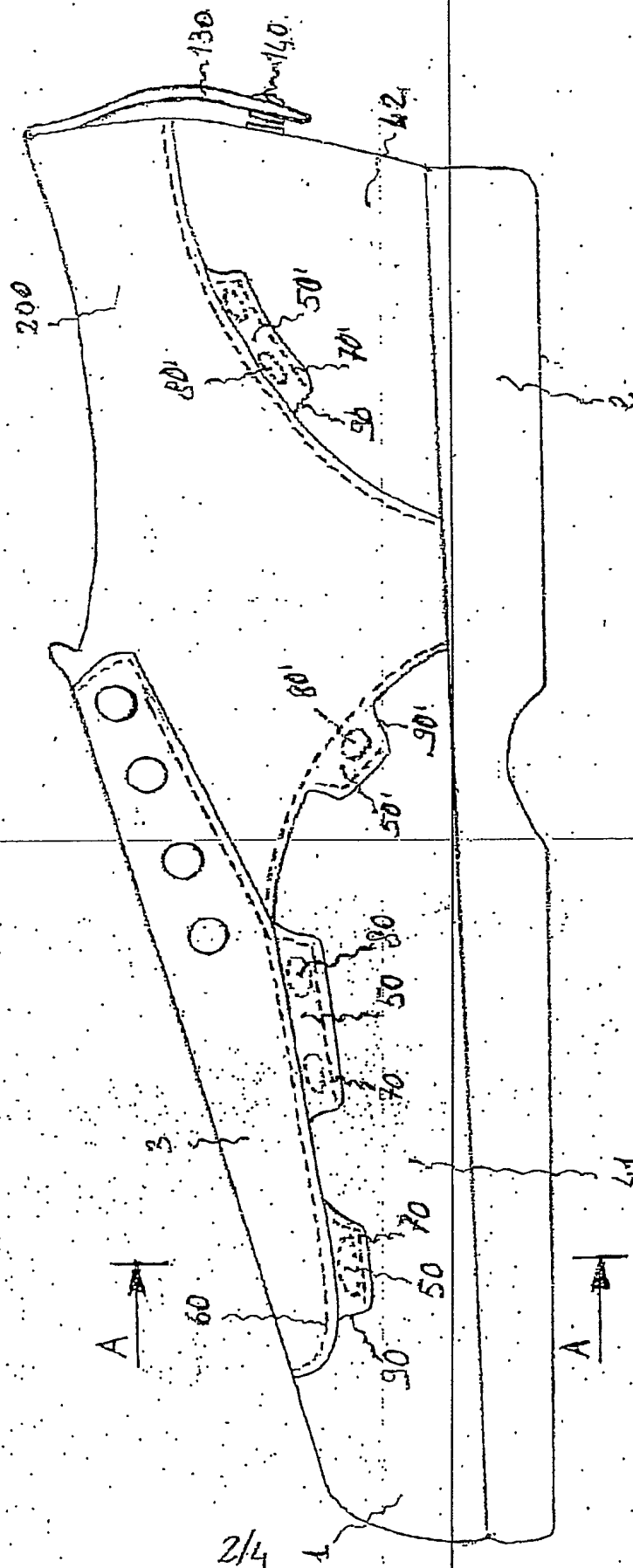
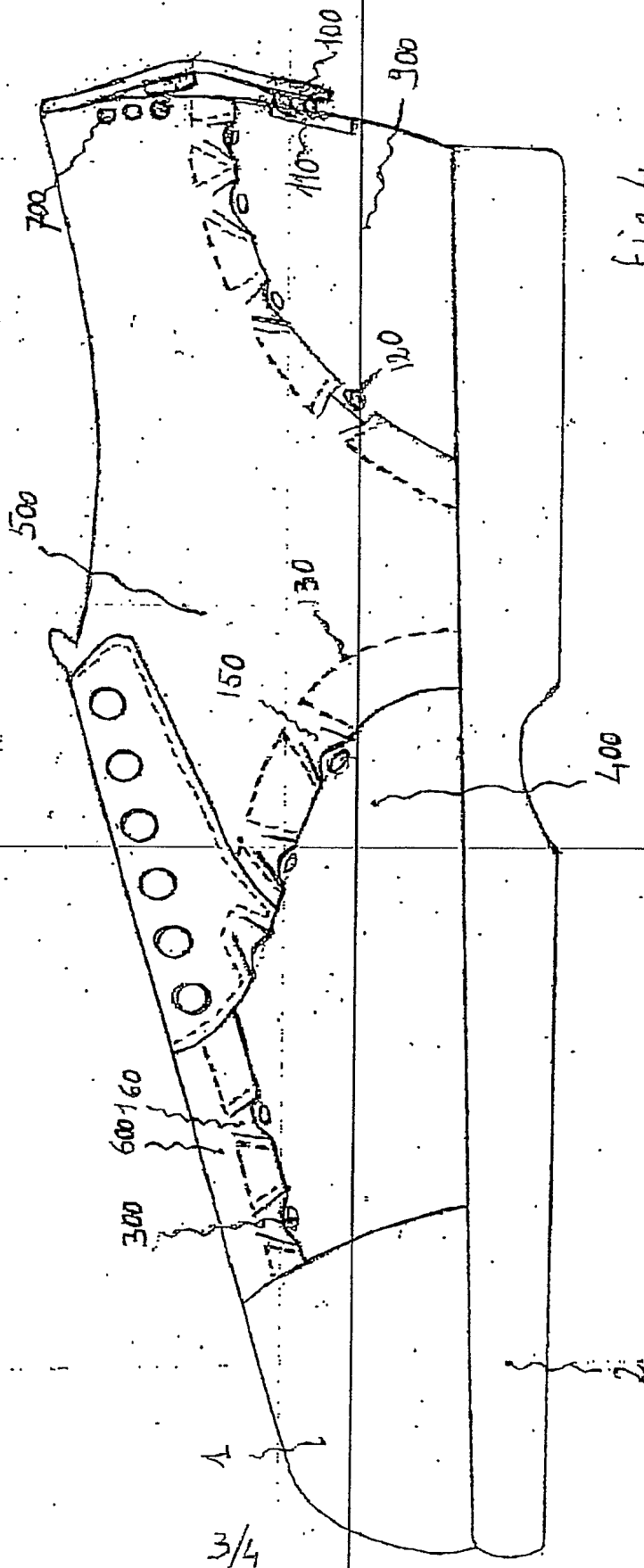


fig. 3



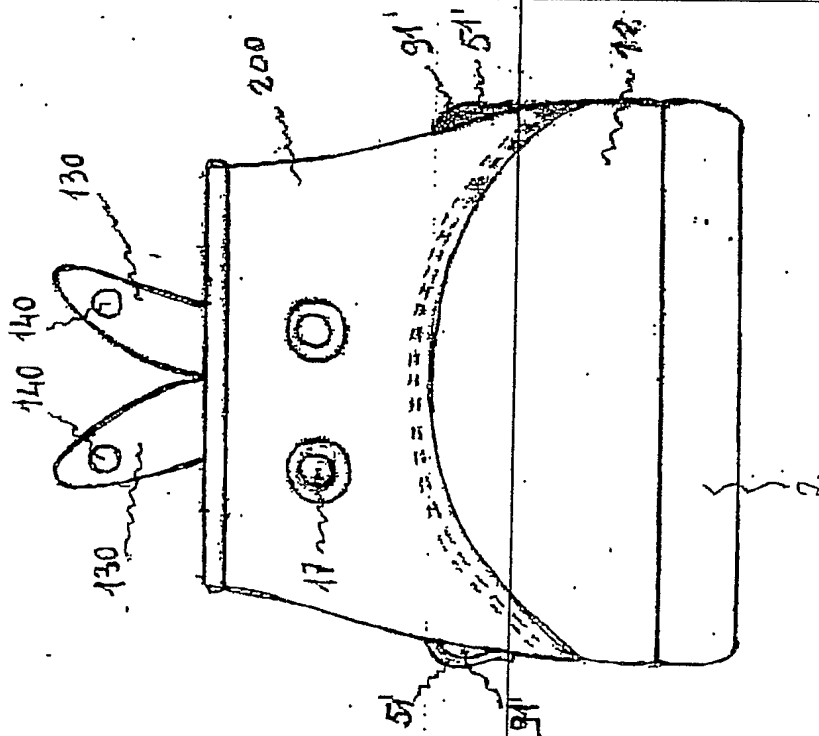


Fig. 5

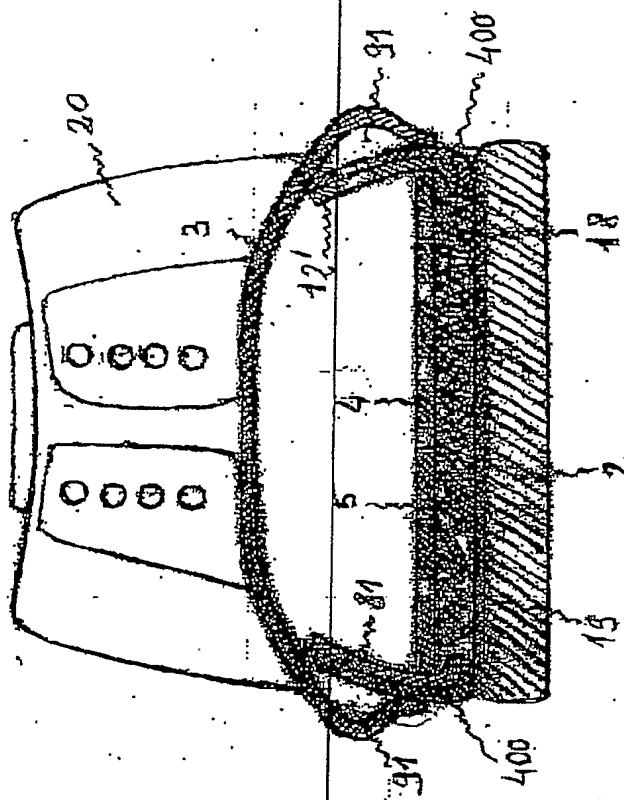


Fig. 6

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AMENDED SHEET

EMPT. nr.: 720 P. 016